ZONOTRILETE MICROSPORES FROM THE EOCENE BAUXITE LAYERS OF GÁNT IN HUNGARY

by

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(Received Febr. 1965)

Introduction

Preliminary dating was known of the spore-pollen assemblage in the bauxite layers with plant-remains in Mount Bagoly of Gánt (KEDVES 1964 a manuscr.). Our recent investigations have been extended to the complete section of the bauxite series. The samples were collected from successive layers of the examined section. The samples were prepared in hydrofluoric acid. In our microscopic examination we have revealed that microssils occured most abundantly in bauxite layers containing plant remains. Besides sporomorphs, this grey bauxite layer was very rich in plant tissues i.e. epidermal remains. The sporomorph assemblage was particularly rich in *Zonotrilete* microspores and, for this reason, we describe these spores in this work.

KRUTZSCH (1959 b) has classified the Zonotrilete microspores as follows below:

A) Formgenus group: *Cingulati* R. POT & KL. 1954, with the following formgenus: *Cingulatisporites* TH. 1953, *Muricingulisporis* KRUTZSCH 1959 b, *Polypodiaceoisporites* R. POT. 1956 non 1951, *Cyatheacidites* COOKSON 1947 emend. KRUTZSCH 1959 b, and *Densoisporites* WEYL. & KRG. 1953.

B) Formgenus group: *Laticingulati* KRUTZSCH 1959 b, with the following formgenus: *Camarozonosporites* PANT ex POTONIÉ 1956, *Proxicingulisporis* KRUTZSCH 1959 b and *Kuylisporites* R. POTONIÉ 1956.

The infraturma *Cingulati* R. POT. and KL. 1954, increased further with *Verrucingulatisporites* KEDVES 1961 a, *Muerrigerisporis* KRUTZSCH 1963, *Undulozonosporites* KEDVES and *Segmentizonosporites* KEDVES (the two latter formgenera are in the process of being published, 1964). KRUTZSCH (1963) has arranged in morphographic order the *Polypodiaceoisporites*, *Verrucingulatisporites* and *Muerrigerisporites*, In possession of the above mentioned data on the derived formgenus *Polypodiaceoisporites*, we give the following scheme; fig. 1.

On the basis of our knowledge of the formgenus *Polypodiaceoisporites*, immediately could be derived the *Segmentizonosporites*, with a narrowing of the zone on the edges. From this follows directly the infraturma *Laticingulati*, of which the formgenus type is *Camarozonosporites*. The series dated by KRUTZSCH (1963), together with the *Undulozonosporites*, thus appear to make complete the morphographic series from *Polypodiaceoisporites* to *Muerrigerisporis*. In the third morphographic series we derive the *Apicrassizonosporites*, with the reduction of the lateral part of the zone.

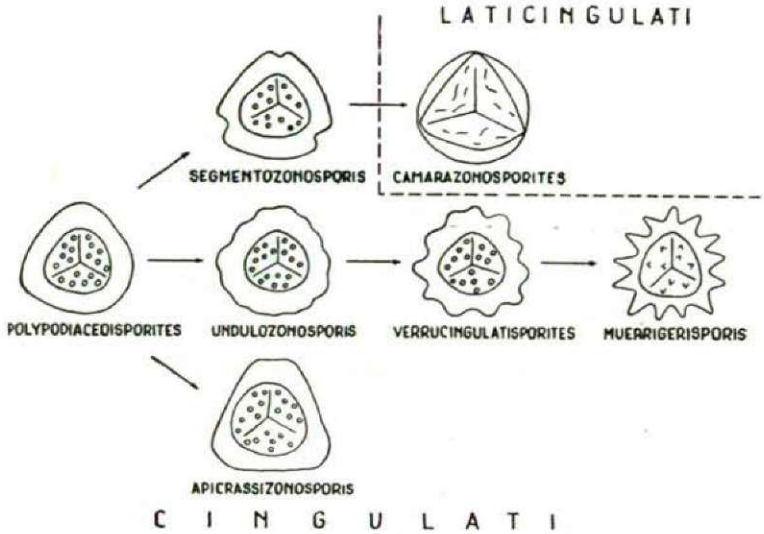


Fig. 1.

The scheme of the formgenus derivated from *Polypodiaceoisporites*
For Segmentozonosporis, Undulozonosporis and Apicrassizonosporis reed Segmentizonosporites, Undulozonosporites and Apicrassizonosporites

Results

Note. — Each of the slides are housed in the Botanical Departement of the József Attila University, Szeged. The locus typicus of each described formspecies is Mount Bagoly in Gánt, the stratum typicum being grey bauxite containing plant remains.

Anteturma *Sporites H.* POTONIÉ 1893.

Turma *Zonales* BENNIE and KIDSTON 1886, emend. POTONIÉ 1956.

Subturma *Zonotriletes* WALTZ 1935, emend. POTONIÉ and KREMP 1954.

Infraturma *Cingulati* POTONIÉ and KLAUS 1954.

Formgenus: *Polypodiaceoisporites* R. POT. 1956 non 1951.

Type formspecies: *P. speciosus* (R. POT. 1934 b) R. POT. 1956.

Other formspecies: *P. macrospeciosus* (R. POT. and GELL. 1933) R. POT. 1956 from the Lower Eocene of the Dorog Basin in Hungary, *P. marxheimensis* (MÜRR. and PF. 1952) KRUTZSCH 1959 b from the Upper Oligocene of Marxheim, *P. callosus* (WEYL. and GREIF. 1953) KRUTZSCH 1959 b from the Lower Senon of Quedlinburg, *P. imperfectus* (MAL.) KRUTZSCH 1959 b from the Cretaceous layers of USSR, *P. falsus* (BOLCH. 1953) KRUTZSCH 1959 b, from the Cretaceous layers USSR, *P. aureus* (BOLCH. 1953) KRUTZSCH 1959 b from the Cretaceous layers of USSR, *P. fortis* KRUTZSCH 1959 b, *P. gracicingulis* KRUTZSCH 1959 b, *P. verruspeciosus* KRUTZSCH 1959 b, *P. obuncus* KRUTZSCH 1959 b, *P. microspeciosus* KRUTZSCH 1959 b, *P. vitiosus* KRUTZSCH 1959 b, from the Middle Eocene of Geiseltal in Germany, *P. potoniei* (R. POT. and GELL. 1933), KEDVES 1961 a subfsp. *major* KEDVES 1961 a and subfsp. *minor* KEDVES 1961 a, *P. latizonatus* KEDVES 1961 a, *P. minor*

KEDVES 1961 a, *P. hungaricus* KEDVES 1961 a, *P. dorogensis* KEDVES 1961 a from the Lower Eocene of the Dorog Basin in Hungary,- *P. gracillimus* E. NAGY 1963 a, from the Lower Miocene of Eger, *P. medius* E. NAGY 1963 b, *P. zólyomii* E. NAGY 1963 b, *P. rectolatus* E. NAGY 1963 b from the Lower Helvetian of Szászvár, *P. granulatus* KEDVES, *P. sculptatus* KEDVES, *P. tatabányensis* KEDVES from the Middle-Upper Eocene of Tatabánya.

1. *Polypodiaceoisporites triangulus* n. fsp. (Pl. I. figs. 1—3)

Description and diagnosis

Equatorial contour rounded-triangular with convex sides. Zone is from 3 to 4 μ wide with a smooth surface. Proximal surface of the polar area verrucate-rugulate, up to 2,5 μ in height. The laesurae extend to the inner margin of the zone. Distal surface of the central area ornamented with corrugate-rugulate sculpture. Contour of the sculptured part of the distal surface of the spore is triangular, with concave or straight sides. On the apices of the central area the distal surface of the central area has characteristic verrucate sculpturing ranging from 4 to 6 μ. Generally, the size and arrangement of the sculptural elements is irregular.

Size of the holotype 30 μ, size range 28—36 μ, on the basis of 4 exemplares.

Holotype: Pl. I. figs. 1—3, prep. GB—6—I, cross-table number 16,2/115,7.

Derivatio nominis: From the inner contour of the distal surface of the sculptured central area.

Comparison: It may be distinguished from *P. minor* KEDVES 1961 a on the basis of its narrower zone and on the basis of the characteristic large sculptural elements of the distal surface of the central area occurring in first line at the peaks.

2. *Polypodiaceoisporites bagolyhegyi* n. fsp. (Pl. I. figs. 4—6)

Description and diagnosis

Equatorial contour rounded-triangular with straight or concave sides. Zone is from 1,5 to 3 μ wide. Proximal part of the central area sculptured with rugulae ranging from 1 to 2,5 μ. The laesurae of the tetrad scar extend to the inner margin of the zone. Distal surface of the central area is rugulate-corrugate, the size of the sculptural elements being approximately 4—5 μ.

Size of the holotype 30 μ, size range 25—36 μ, on the basis of 10 exemplares.

Holotype: Pl. I. figs. 4—6, prep. GB—6—II, cross-table number 5,9/116,4.

Derivatio nominis: From Mount Bagoly, the locality of the holotype.

Comparison: It may be distinguished from *P. triangulus* n. fsp. with the aid of the exclusively rugulate ornaments of the proximal side of the central area and with the aid of its narrower zone.

3. *Polypodiaceoisporites cerebriformis* n. fsp. (Pl. I. figs. 7—9)

Description and diagnosis

Equatorial contour triangular with convex or concave sides. Zone is from 2 to 3,5 μ wide. Proximal surface of the central area sculptured with granules ranging from 0,6 to 1,5 μ. The laesurae are long but not reaching the inner margin of zone. Exospore thickened about the laesurate margin, with rugulate sculptural elements having a diameter of approximately 2 μ. Sculpture of the distal surface of the central part is rugulate with relatively long, irregularly arranged sculptural elements, which are from 2 to 3 μ in width.

Size of the holotype 30 μ, size range 25—37 μ, on the basis of 8 exemplares.

Holotype: Pl. I. figs. 7—9, prep. GB—6—II, cross-table number 16,2/115,7.

Derivatio nominis: From the sculpturing of the distal surface of the central area.

Comparison: It may be distinguished from *P. bagolyhegyi* n. fsp. by the granulated sculpture of the proximal side of the central area.

4. *Polypodiaceoisporites rugulatearis* n. fsp. (Pl. I. figs. 10—12)

Description and diagnosis

Equatorial contour rounded triangular with stright or concave sides. The zone is approximately 2,5 μ wide. Both the proximal and distal surface of the central area are sculptured with rugulae. The sculptural elements range from 2 to 4 μ. The laesurae of the tetrad scar are long, but not reaching the inner margin of the zone.

Size of the holotype 28 μ, size range 22—34 μ on the basis of 12 exemplares.

Holotype: Pl. I. figs. 10—12, prep. GB—6—IV, cross-table number 6,7/106,1.

Derivatio nominis: From the sculpturing of the proximal and distal surfaces of the central area.

Comparison: It may be distinguished from *P. bagolyhegyi* n. fsp. with aid of the exclusively rugulate sculpture of both sides of the central area and with the aid of its narrower sculptural elements.

5. *Polypodiaceoisporites bauxitus* n. fsp. (Pl. I. figs. 13—15)

Description and diagnosis

Equatorial contour rounded triangular with concave or convex sides. Zone is from 2,5 to 4 μ wide. Proximal surface of the polar area verrucate, the sculptural elements ranging from 1,5 to 3 μ. The laesurae of the tetrad scar are long but do not reach the inner margin of the zone. The distal surface of the central area is rugulate-corrugate, the size of the sculptural elements being approximately 3,5 μ.

Explanation of plate I

Figs. 1—3. *Polypodiaceoisporites triangulus* n. fsp. prep. GB—6—I, cross-table number 16,2/115,7.

Figs. 4—6. *Polypodiaceoisporites bagolyhegyi* n. fsp. prep. GB—6—II, cross-table number 5,9/116,4.

Figs. 7—9. *Polypodiaceoisporites cerebriformis* n. fsp. prep. GB—6—II, cross-table number 16,2/115,7.

Figs. 10—12. *Polypodiaceoisporites rugulatearis* n. fsp. prep. GB—6—IV, cross-table number 6,7/106,1.

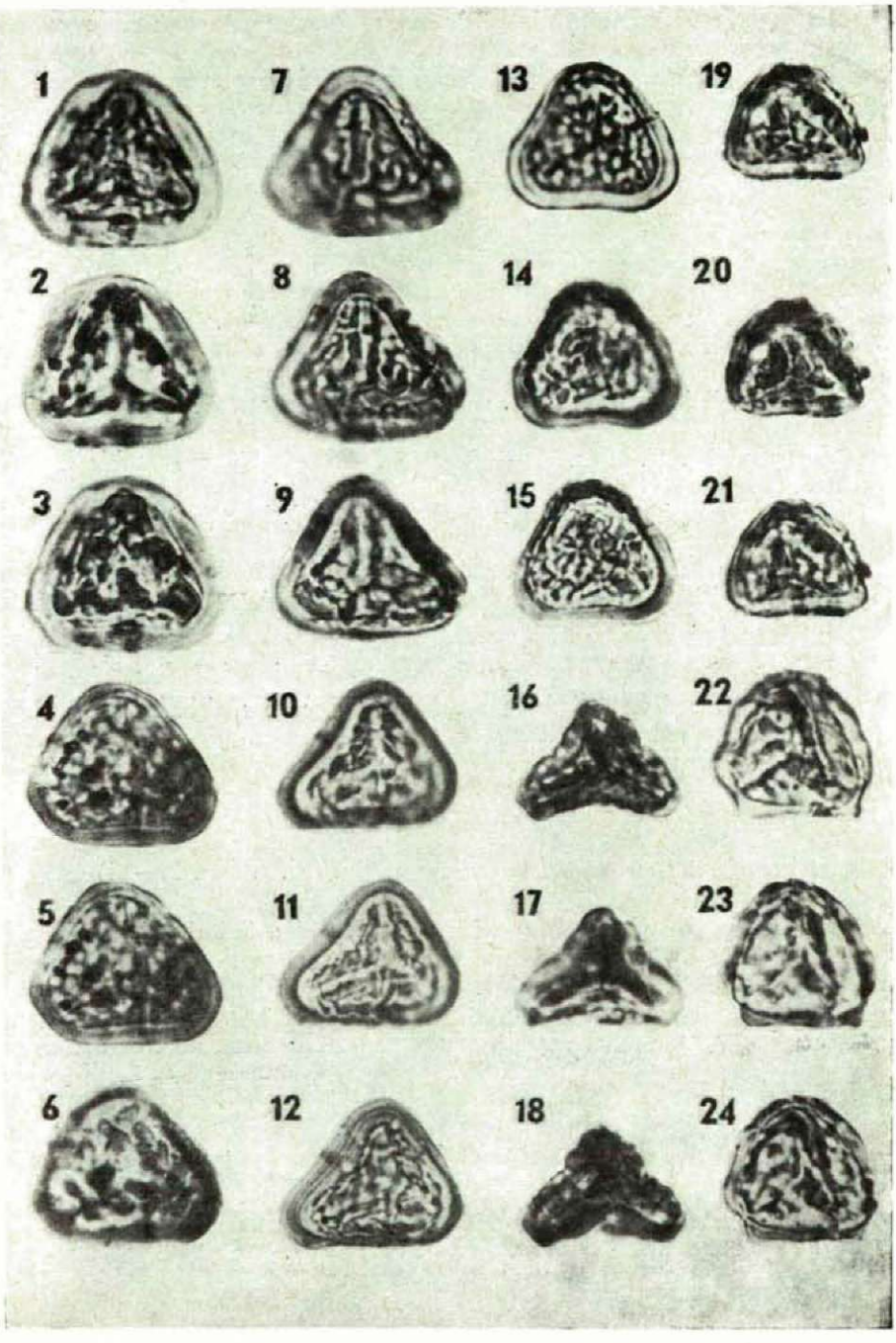
Figs. 13—15. *Polypodiaceoisporites bauxitus* n. fsp. prep. GB—6—III, cross table number 5,3/111,8.

Figs. 16—18. *Polypodiaceoisporites laevigatus* n. fsp. prep. GB—6—II, cross-table number 20,7/108,6.

Figs. 19—21. *Polypodiaceoisporites vitiosus* KRUTZSCH 1959 b prep. GB—6—IV, cross-table number 5,3/108,2.

Figs. 22—24. *Segmentizonosporites palaeogenicus* n. fsp. prep. GB—6—I, cross-table number 8,6/110,9.

Plate I.



Size of the holotype: 28 μ, size range 25—30 μ, on the basis of 20 exemplares.

Holotype: Pl. I. figs. 13—15, prep. GB—6—III, cross-table number 5,3/111,8.

Derivatio nominis: From the material of the stratum typicum.

Comparison: It may be distinguished from *P. rugulatearis* n. fsp. with the aid of the rugulate-corrugate sculpture of the distal surface and the rugulate sculpture of the proximal surface of the central area.

6. *Polypodiaceoisporites laevigatus* n. fsp. (Pl. I. figs. 16—18)

Description and diagnosis

Equatorial contour triangular with concave sides. Zone is from 2 to 3 μ wide. Proximal surface of the polar area smooth or finely scabrate. The leasurae of the tetrad scar reach to the inner margin of the zone. The distal part of the central area is rugulate the size of the sculptural elements being approximately 2,5 μ.

Size of the holotype 26 μ, size range 25—30 μ, on the basis of 3 exemplares.

Holotype: Pl. I. figs. 16—18, prep. GB—6—II, cross-table number 20,7/108,6.

Derivatio nominis: From the smooth surface of the proximal part of the central area.

Comparison: It may be distinguished from *P. hungaricus* KEDVES 1961 a with the aid of its narrower zone and by the smooth or scabrate surface of the proximal side of the central area.

7. *Polypodiaceoisporites vitiosus* KRUTZSCH 1959 b (Pl. I. figs. 19—21)

This spore was described from the Middle Eocene coal-basin of Geiseltal. Our specimens agreed completly with the description given by KRUTZSCH (1959 b).

Formgenus: *Segmentizonosporites* KEDVES.

Type formspecies: *S. triangulus* KEDVES.

1. *Segmentizonosporites palaeogenicus* n. fsp. (Pl. I. figs. 22—24)

Description and diagnosis

Equatorial contour triangular with concave sides. Width of the zone on the sides is from 2 to 3 μ, and on the spices from 0,5 to 1 μ. Proximal surface of the central area is both granulate and verrucate, the size of the granules being from 0,8 to 1 μ, and of the verrucae from 2 to 3 μ. The laesurae of the tetrad scar reach to the inner margin of the zone. The distal part of the central area is rugulate-corrugate, the sculptural elements being from 1 to 2 μ in width.

Size of the holotype 25 μ, size range 25—31 μ, on the basis of 6 exemplares.

Holotype: Pl. I, figs. 10—12, prep. GB—6—I, cross-table number 8,6/110,9.

Derivatio nominis: From the age of holotype.

Comparison: It may be distinguished from *S. triangulus* KEDVES with the aid of its longer tetrad mark and with the aid of the narrower sculptural elements of the distal surface of the central area.

Formgenus: *Undulozonosporites* KEDVES

Type formspecies: *U. magnus* KEDVES

Other formspecies: *U. concavus* KEDVES from the Middle-Upper Eocene of Tatabánya.

1. *Undulozonosporites transdanubicus* n. fsp. (Pl. II. figs. 1—3)

Description and diagnosis

Equatorial contour rounded triangular with sinuous margin. Zone is from 1,5 to 3 μ wide. Proximal surface of the polar area is granulate-rugulate, the size of the sculptural elements being approximately 2 μ. The laesurae of the tetrad scar reach almost to the inner margin of the zone. The distal part of the central area is sculptured with verrucae ranging from 2 to 4 μ. The base of the sculptural elements formed a reticula negative.

Size of the holotype 25 μ, size range 22—28 μ, on the basis of 4 exemplares.

Holotype: Pl. II. figs. 1—3, prep. GB—6—I, cross-table number 12,8/105,4.

Derivatio nominis: From the region of locus typicus (Transdanubia).

Comparison: It may be distinguished from *U. concavus* KEDVES by the characteristic ornaments of the distal side of the central area.

2. *Undulozonsporites minor* n. fsp. (Pl. II. figs. 4—6)

Description and diagnosis

Equatorial contour rounded-triangular with straight or concave sides having a sinuous margin. Zone is form 2—3,5 μ in width. Proximal surface of the polar area is granulate-verrucate, with the size of the sculptural elements ranging from 1 to 2,5 μ. The laesurae of the tetrad scar are long but do not reach to the inner margin of the zone. The distal surface of the central area is sculptured with anastomosing low ridges ranging from 2 to 4 μ.

Size of the holotype 27 μ, size range 23—32 μ, on the basis of 8 exemplares.

Holotype: Pl. II, figs. 4—6, prep. GB—6—I, cross-table number 12,4/105,5.

Derivatio nominis: From the size of the spore.

Comparison: It may be distinguished from *U. transdanubicus* n. fsp. by the ornaments of the distal side of the central area.

3. *Undulozonosporites triangulus* n. fsp. (Pl. II. figs. 7—9)

Description and diagnosis

Equatorial contour triangular with straight sides and sinuous margin. Zone is from 1,5 to 3 μ wide. Proximal surface of the polar area is unsculptured, but the margin of the laesurae has a sculpturing of long muri. The laesurae extend almost to the inner margin of the zone. The distal surface is rugulate-corrugate, with sculptural elements from 2 to 3 μ wide.

Size of the holotype 28μ, size range 26—30 μ, on the basis of 5 exemplares.

Holotype: Pl. II, figs. 7—9, prep. GB—6—II, cross-table number 14,4/111,7.

Derivatio nominis: From the equatorial contour of the spore.

Comparison: It may be distinguished from *U. transdanubicus* n. fsp. by the unsculptured proximal side of the central area.

4. *Undulozonosporites bauxitus* n. fsp. (Pl. II. figs. 10—12)

Description and diagnosis

Equatorial contour rounded-triangular with convex sides. Equatorial margin sinuous. Zone is from 1,5 to 3 μ wide. Proximal surface of the polar area is granulate-verrucate, the size of the sculptural elements being approximately 2 μ. The laesurae of the tetrad scar reach to the inner margin of the zone. Sculpture of the distal surface of the central area is corrugate, with irregularly arranged sculptural elements, ranging from 2 to 4 μ in width.

Size of the holotype 27 μ, size range 24—30 μ, on the basis of 10 exemplares.

Holotype: Pl. II, figs. 10—12, prep. GB—6—I, cross-table number 6,7/110,2.

Derivatio nominis: From the stratum typicum of holotype.

Comparison: It may be distinguished from *U. minor* n. fsp. by the irregularly arranged sculptural elements of the proximal side of the central area.

Formgenus: *Verrucingulatisporites* KEDVES 1961 a

Type formspecies: *V. verrucatus* KEDVES 1961 a

Other formspecies: *V. stellarius* KEDVES 1961 a from the Lower Eocene of the Dorog Basin in Hungary, *V. treplinensis* KRUTZSCH 1961 d from the Upper Oligocene-Lower Miocene of Lausitz and Brandenburg of Germany, *V. undulatus* E. NAGY 1963 a from the Lower Miocene of Eger, *V. murireticulatus* E. NAGY 1963 b from the Lower Helvetian of Szászvár in Hungary, *V. gregussii* E. NAGY 1963 b from the Helvetian of Zengővárkony in Hungary, *V. transdanubicus* KEDVES 1965 from the Eocene of Iszkaszentgyörgy.

1. *Verrucingulatisporites bauxitus* n. fsp. (Pl. II. figs. 13—15)

Description and diagnosis

Equatorial contour triangular, usually with straight sides. The zone is from 2,5 to 4 μ wide with a smooth surface sculptured with verrucae ranging from 1,5 to 2,5 μ in height. Part of the proximal surface of the central area is sculptured with granules, and another part with verrucae. Some of the granules are arranged in the direction of the inner margin of the zone, and others in the direction of the laesurae. The granules range in size from 0,5 to 1 μ. The verrucae of the other part of the proximal surface of the central area range in

Explanation of plate II

Figs. 1—3. *Undulozonosporites transdanubicus* n. fsp. prep. GB—6—I, cross-table number 12,8/105,4.

Figs. 4—6. *Undulozonosporites minor* n. fsp. prep. GB—6—I, cross-table number 12,4/105,5.

Figs. 7—9. *Undulozonosporites triangulus* n. fsp. prep. GB—6—II, cross-table number 14,4/111,7.

Figs. 10—12. *Undulozonosporites bauxitus n.* fsp. prep. GB—6—I, cross-table number 6,7/110,2.

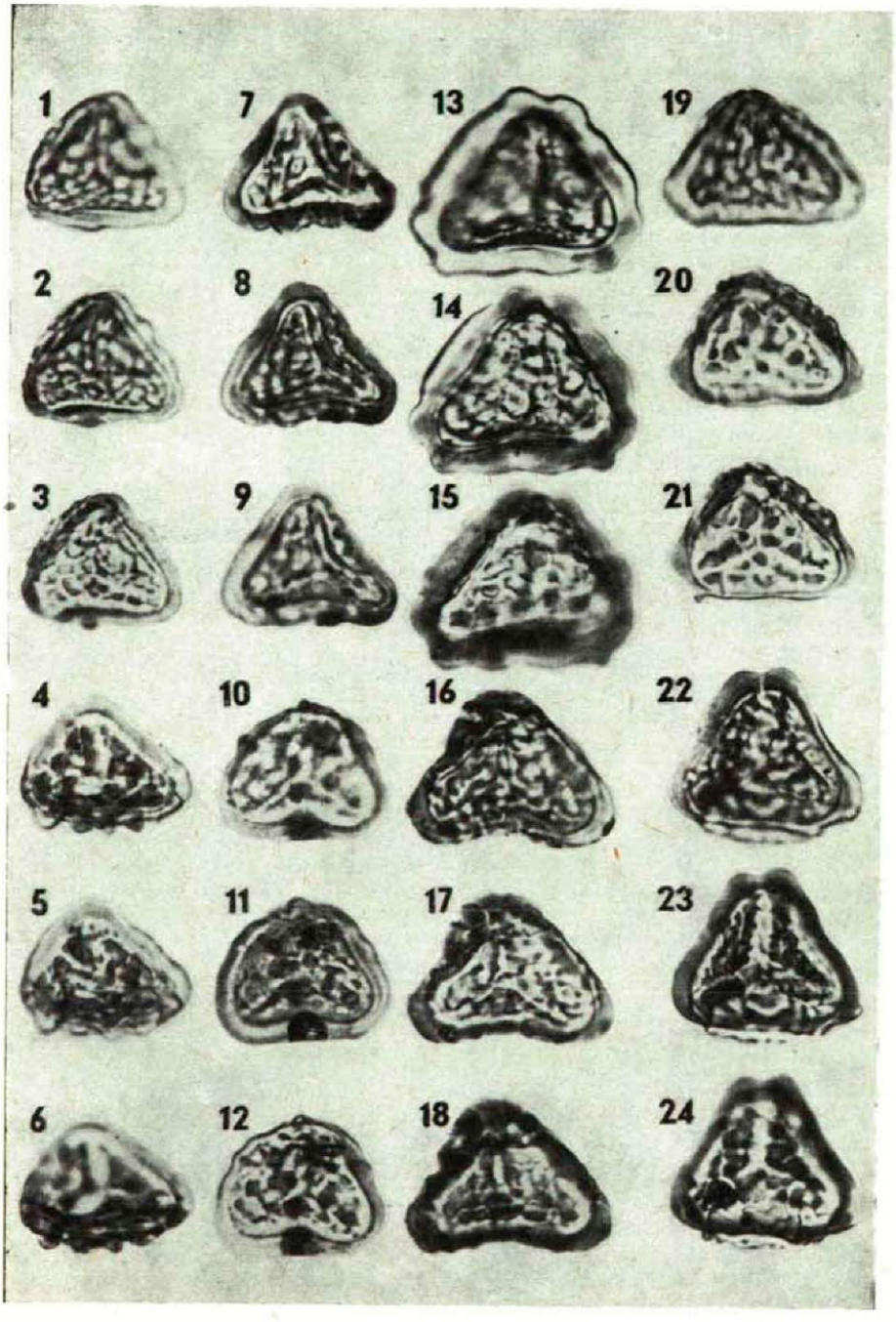
Figs. 13—15. *Verrucingulatisporites bauxitus* n. fsp. prep. GB—6—III, cross-table number 8,3/112,4.

Figs. 16—18. *Apicrassizonosporites concavus* n. fgen. et fsp. prep. GB—6—II, cross-table number 21,1/104,6.

Figs. 19—21. *Apicrassizonosporites bauxitus* n. fgen. et fsp. prep. GB—6—I, cross-table number 8,5/109,3.

Figs. 22—24. *Apicrassizonosporites ganti* n. fgen. et fsp. prep. GB—6—I, cross-table number 11,8/102,8.

Plate II.



size from 1 to 3 μ. The laesurae of the tetrad scar are long but do not reach the inner margin of the zone. The ornamentation of the distal surface of the central area is exclusively verrucate, the base of the verrucae forming a reticula negative. The lumina of the reticules are from 2 to 5 μ in diameter, and the verrucae are approximately 3 μ in height.

Size of the holotype 36 μ, size range 36—40 μ, on the basis of 2 exemplares.

Holotype: Pl. II, figs. 13—15, prep. GB—6—III, cross-table number 8,3/112,4.

Derivatio nominis: From the stratum typicum of the formspecies.

Comparison: It differs from *V. verrucatus* KEDVES 1961 a by its narrower zone and by the lower sculptural elements of the zone.

Formgenus: *Apicrassizonosporites* n. fgen.

Type formspecies: *A. concavus* n. fsp.

Diagnosis

Zonotrilete microspores. The zone is wider on the apices than on the sides. Central area is sculptured.

Comparison: The *Trilobosporites* PANT ex POTONIÉ 1956 spores in certain respect resemble the described new genus, but they are cingulate microspores. According to data from literature, azonotrilete microspores are included in the *Trilobosporites* PANT ex POTONIÉ 1956.

1. *Apicrassizonosporites concavus* n. fsp. (Pl. II. figs. 16—18)

Description and diagnosis

Equatorial contour triangular with concave sides. Width of the zone on the sides is about 1,5 μ, and on the apices from 3 to 4 μ. Contour of the central area is rounded-triangular with concave sides. Proximal surface of the central area is verrucate-rugulate. Verrucae are spherical up to 1,5 μ with muri arranged in the direction of the laesurae. The laesurae of the tetrad scar reach to the inner margin of the zone. Distal surface of the central area sculptured with anastomosing rugulae ranging from 3 to 22 μ.

Size of the holotype 34 μ, size range 30—39 μ, on the basis of 10 exemplares.

Holotype: Pl. II. figs. 1—3, prep. GB—6—II, cross-table number 21,1/104,6.

Derivatio nominis: From the equatorial contour of the spore.

2. *Apicrassizonosporites bauxitus* n. fsp. (Pl. II. figs. 19—21)

Description and diagnosis

Equatorial contour is triangular with straight sides. Width of the zone on the apices is from 3 to 4 μ and on the sides from 1 to 3 μ. The inner contour of the zone is rounded triangular. Proximal and distal surfaces of the central area are rugulate-corrugate, with sculptural elements from 2 to 3,5 μ wide.

Size of the holotype 32 μ, size range 30—35 μ, on the basis of 5 exemplares.

Holotype: Pl. II. figs. 19—21, prep. GB—6—I, cross-table number 8,5/109,3.

Derivatio nominis: From the stratum typicum of holotype.

Comparison: It may be distinguished from *A. concavus* n. fsp. with the aid of the rugulate-corrugate sculpture of both side of the central area and with the aid of its much narrower sculptural elements.

3. *Apicrassizonosporites ganti* n. fsp. (Pl. II. figs. 22—24)

Description and diagnosis

Equatorial contour triangular with concave or straight sides. Width of the zone on the sides is from 2 to 3,5 μ, and on the apices approximately 4 μ. Proximal surface of the polar area is sculptured with granules and irregularly anastomosing low ridges (sculpture corrugate-rugulate), the size of the sculptural elements being about 2 μ. The laesurae of the tetrad scar reach to the inner margin of the zone. The distal surface of the central area is rugulate with sculptural elements from 2 to 4 μ in width.

Size of the holotype 30 μ, size range 30—34 μ, on the basis of 3 exemplares.

Holotype: Pl. II. figs. 22—24, prep. GB—6—I, ross-table number 11,8/102,8.

Derivatio nominis: From Gánt the locality of holotype.

Comparison: It may be distinguished from *A. concavus* n. fsp. with the aid of the granulated, corrugate-rugulate ornaments of the proximal surface of the central area and with the aid of the narrower sculptural elements of the distal side.

Discussion

On the basis of our recent knowledge of these spores, it has been established that they occur in the Upper Cretaceous layers (personal communication after Dr. F. Góczán). These are rare in the Paleocene and Lower Eocene layers (the age of the coal-strata of the Dorog Basin, where the spores of *Polypodiaceoisporites* occur frequently, appear to be lower region of the Middle Eocene according to our more recent data). Krutzsch (1959 b) has demonstrated the abundance of *Polypodiaceoisporites* in the Lutetian layers from Geiseltal. In Hungary, there is also the same rich zonotrilete spore assemblage in the Middle-Upper Eocene layers of Tatabánya. Similarly, according to the aforesaid there is an abundance of this spore type in the upper part of the Middle Eocene and Upper Eocene from the Bakony Mountains (Kedves unpublished). For these reasons and because of the abundance of *Pinus* pollens in the examined bauxite, we cosider the age of the bauxite layers to be Middle Eocene, bearing in mind that, as yet, the composition of the spore-pollen of the layers overlying bauxite is unknown.

Summary

During our recent palynological investigations of bauxite layers with plant-remains in Mount Bagoly of Gánt we found a rich spore-pollen assemblage. In this work we deal with the *Zonotrilete* microspores. We have described 15 new formspecies and 1 new formgenus. The great variety of the above-mentioned spores and the general aspect of the spore-pollen complex indicates that the age of the examined bauxite is not Upper Cretaceous or Paleocene, as previously believed, but Middle Eocene.

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